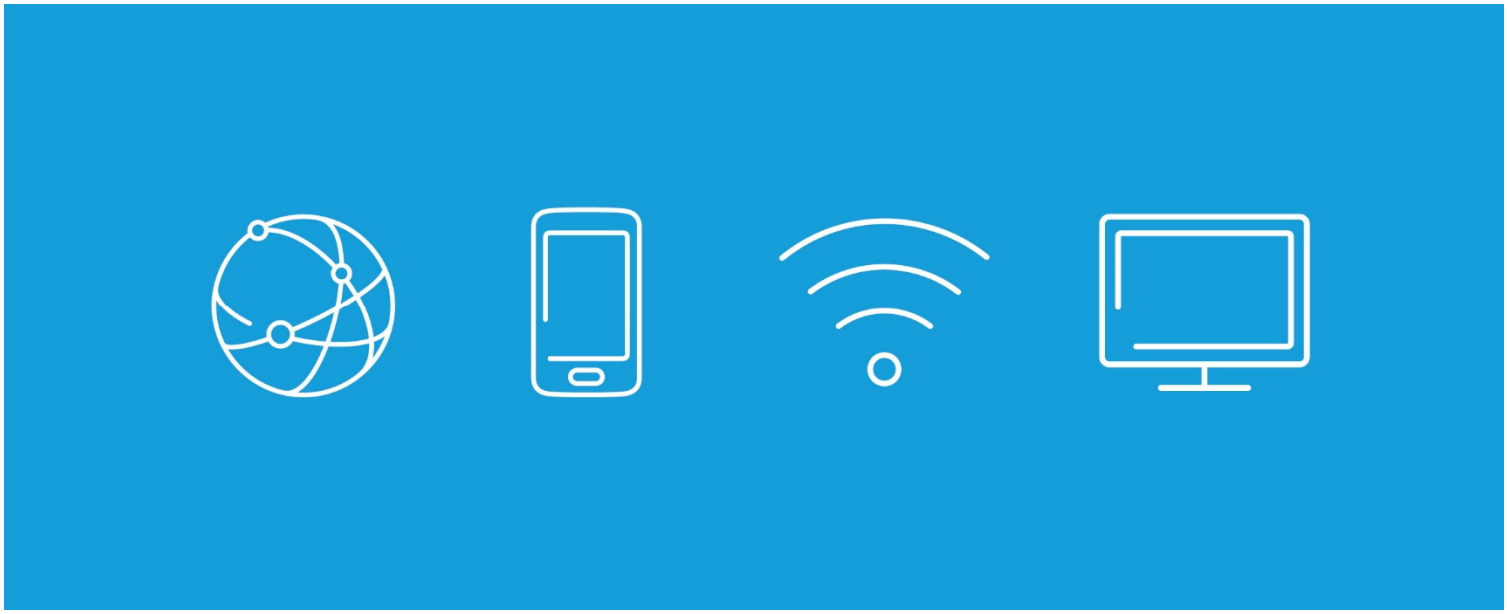
AT&T Response to Virginia Information Technologies Agency's RFI 2017-14 for Server, Data Center, and Security Services



7229 Parkway Dr.
Hanover MD 21076

Office: 703-220-7741
jeff.craft@att.com
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October 21, 2016

Mr. Greg Scearce
VITA Supply Chain Management
Commonwealth of Virginia
11751 Meadowville Lane
Chester, VA 23836

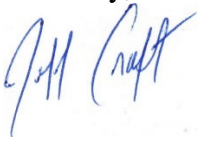
Dear Mr. Scearce:

AT&T is pleased to respond to the Virginia Information Technologies Agency's (VITA) RFI for Server, Storage and Data Center Services as well as Managed Security Services. In developing our response we have kept the stated goals of VITA at the forefront of our thoughts.

- **Maintain and improve service quality.**
  - Develop the capability to address evolving agency needs and create opportunities to improve service performance without degrading service reliability, security, and quality.
- **Ensure cost competitiveness – both now and in the future.**
  - Structure service offerings so they can be more easily compared to market services at market rates; offer a menu of service options to customers.
- **Create a platform view of service delivery that is highly visible and accountable.**
  - Provide for Enterprise and Agency visibility of consumption, cost, performance, and the responsiveness of suppliers. Establish a governance structure and forums to promote stakeholder engagement and improve the balance of agencies and enterprise needs.

As the world's largest telecommunications company AT&T has one of the most comprehensive security and managed services portfolios in the industry. This response provides suggestions for future technologies and best practices based on AT&T's experience in managed services and maintaining security for the US Federal government, state governments, counties and cities across the United States. The depth and breadth of knowledge puts AT&T in a position of leading the world in our industry.

Sincerely,



Jeffrey S. Craft
Client Solutions Executive

Connecting Your World

AT&T Response to Virginia Information Technologies Agency's RFI for Server, Data Center, and Security Services

October 21, 2016

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RFI Response

COMMONWEALTH OF VIRGINIA

VIRGINIA INFORMATION TECHNOLOGIES AGENCY (VITA)

SUPPLY CHAIN MANAGEMENT DIVISION

11751 MEADOWVILLE LANE
CHESTER, VIRGINIA 23836

REQUEST FOR INFORMATION (RFI) 2017-14

FOR:

SERVER, DATA CENTER, AND SECURITY SERVICES

Issue Date:	September 29, 2016
Due Date/Time:	October 21, 2016 @ 3:00 pm Eastern
Response Delivery Method:	E-mail attachment to Single Point of Contact
Single Point of Contact (SPOC):	Greg Scearce, VITA Supply Chain Management (SCM)
Telephone:	(804) 416-6166
E-mail Address:	gregory.scearce@vita.virginia.gov

NOTE: This public body does not discriminate against faith-based organizations in accordance with the Code of Virginia, §2.2-4343.1 or against a Supplier because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by state law relating to discrimination in employment.

VITA is committed to increasing procurement opportunities for small, women-owned, and minority-owned (SWaM) businesses, strengthening the Commonwealth's overall economic growth through the development of its IT suppliers.

1. Introduction

The intent of this Request for Information (RFI) is solely to gather information; it is not a formal procurement. Responding to the RFI is not a pre-requisite to submitting a proposal for any subsequent procurement. Respondents should not provide any confidential or proprietary information.

Ownership of all data, materials, and documentation originated and prepared for VITA pursuant to the RFI shall rest exclusively with VITA. All information provided to VITA as part of this RFI will not be publicly disclosed, but shall be subject to public inspection in accordance with the §2.2-4342 of the *Virginia Public Procurement Act and the* V*irginia Freedom of Information Act.*

AT&T Response:

AT&T has read and understands.

A. IT Infrastructure Services Program (ITISP) Overview

This procurement event is a component in VITA's overall strategy to implement a new IT Infrastructure Services Program (ITISP). This program will position VITA to fulfill its vision to "deliver agile technology services at the speed of business" by better balancing the needs of the individual agencies and the enterprise in a multisupplier ecosystem. The ITISP is intended to accomplish the following:

- **Maintain and improve service quality.**
  - Develop the capability to address evolving agency needs and create opportunities to improve service performance without degrading service reliability, security, and quality.
- **Ensure cost competitiveness – both now and in the future.**
  - Structure service offerings so they can be more easily compared to market services at market rates; offer a menu of service options to customers.
- **Create a platform view of service delivery that is highly visible and accountable.**
  - Provide for Enterprise and Agency visibility of consumption, cost, performance, and the responsiveness of suppliers. Establish a governance structure and forums to promote stakeholder engagement and improve the balance of agencies and enterprise needs.

Procurement of new services that will transition the Commonwealth from a single supplier model to an integrated multisupplier model is occurring over three waves. VITA has begun implementing Wave 1 of this transition by awarding a contract for Messaging services in July 2016 and a contract for IBM Mainframe services in September 2016. Wave 2 of this transition begins with this Request for Proposal ("RFP") soliciting proposals for the services of a multisourcing service integrator (MSI). That procurement was released on September 29, 2016 under RFP# 2017-03. The Wave 2 procurements are also intended to include services for Server, Storage, Data Center LAN, Data Center Facilities, and Managed Security Services (abbreviated as "Server, DC, and Security").

Respondents to this RFI are encouraged to review the publicly available RFP# 2017-03 documents for additional context. Note also that there will be a Pre-Proposal Web Conference for the MSI RFP, scheduled for Tuesday, October 4th at 2 pm. Information to register for the conference is indicated in the RFP Instructions for RFP# 2017-03.

AT&T Response:

AT&T has read and understands.

B. RFI Purpose

VITA has decided to accelerate its MSI implementation, such that the contract for RFP# 2017-03 is awarded while the other Wave 2 procurements are still underway. The initial focus on the MSI RFP allows additional time at the front-end of the timeline to gather further market research for Server, DC, and Security via this RFI. This RFI will allow VITA to improve the quality of the resultant RFP or RFPs to be released around the end of 2016.

Currently, VITA's Wave 2 internal RFP teams are structured around two separate potential RFPs: 1.) Server, Storage and Data Center Services and 2.) Managed Security Services. However, VITA is interested in identifying the most efficient demarcation or bundling of these services between RFPs. For example, perhaps it would be more efficient to separate the Data Center facilities from the other Server services; or perhaps it would be better to include some or all of the Security services with the Server RFP. VITA anticipates resolving these decisions, and other questions as detailed in the Section 5 (Questions) below, in part by considering feedback obtained from marketplace participants via this RFI.

The Commonwealth has the following goals for the procurements:

Server, Storage, and Data Center Services

- Assume all existing Services for Server, Storage, Data Center LAN, and Centralized Data Center facility currently provided to the Commonwealth via the Comprehensive Infrastructure Agreement (CIA) with Northrop Grumman.
- Transition to the next generation of delivery for Server, Storage, and Data Center services to VITA and Customers, taking advantage of the ever-changing technology landscape while decreasing costs to VITA and Customers.
- Provide compute, storage, and Data Center LAN services that are flexible, rapidly provisioned, cost effective, transparent, and elastic to meet VITA and Customer needs while preserving enterprise requirements such as security and compliance management.

Managed Security Services

- Replace the existing security services included within the Comprehensive Infrastructure Agreement (CIA) with Northrop Grumman.
- Support VITA's Commonwealth Security and Risk Management (CSRM) directorate by acting as its operational "hands and feet":
  - Advising on risks and standards development
  - Assessing vulnerabilities and compliance (suppliers and agencies)
  - Provide security monitoring and integration tools across the environment
  - Respond to and address security risks and incidents
  - Provide tools and technologies to protect the environment from compromise
  - Provide security services that are adjustable to meet compliance needs of the Customer and adaptable to advancements in both security and technology industries
  - Establish, implement and maintain a secure enterprise information technology environment ensuring the confidentiality, integrity and availability of critical Commonwealth information and systems
  - Provide VITA and its Customers with access to their data and metadata, in real-time

AT&T Response:

AT&T has read and understands.

2. Submission Logistics and Contact Information

Issue Date: September 29, 2016

Due Date / Time:	October 21, 2016 at 3:00 pm EST
Response Delivery Method:	E-mail attachment or CD sent to Single Point of Contact. Note: e-mail must be received by the due date and time; CD must be post-marked by the due date, but can be received later. E-mail attachments must be limited to 10 MB.
Single Point of Contact (SPOC):	Greg Scearce
Telephone:	(804) 416-6166
E-mail Address:	gregory.scearce@vita.virginia.gov
Mailing Address:	11751 Meadowville Lane, Chester, VA 23836
Pricing:	No pricing information should be submitted
Document Format:	Return this document, having populated Section 4 (Respondent Contact Information), Section 5 (Questions) below, and Section 6 (Feedback Regarding RFI Documents)
RFI Questions and Answers:	Suppliers may submit questions regarding this RFI at any time via e-mail to the SPOC.

AT&T Response:

AT&T has read and understands.

3. Overview of RFI Documents

Within this RFI, VITA has chosen to release the following documents, which are drafts of some key documents anticipated for release in a final RFP or RFPs.

- Exhibit 2.1-a: Server, Storage, Data Center LAN Services
- Exhibit 2.1-b: Data Center Facilities Services
- Exhibit 2.1-c: Managed Security Services
- Exhibit 2.2: Cross-Functional Services
- Exhibit 3.1-a: Server, Storage, Data Center LAN, and Data Center Facilities SLA Matrix

- Exhibit 3.1-b: Managed Security SLA Matrix
- Exhibit 3.2-a: Server, Storage, Data Center LAN, and Data Center Facilities SLA Descriptions
- Exhibit 3.2-b: Managed Security SLA Descriptions
- Exhibit 4: Pricing and Financial Provisions
- Exhibit 4.1-a: Server, Storage, Data Center LAN, and Data Center Facilities Pricing and Volumes Matrix
- Exhibit 4.1-b: Managed Security Pricing and Volumes Matrix
- Exhibit 4.2-a: Server, Storage, Data Center LAN, and Data Center Facilities RU Definitions
- Exhibit 4.2-b: Managed Security RU Definitions
- Exhibit 4.4: Form of Invoice

AT&T Response:

AT&T has read and understands.

4. Respondent Contact Information

Please provide your contact information in the box below.

Contact Information	Enter your response here, enlarging the box as needed
Company Name	AT&T Corp.
Company Mailing Address	One AT&T Way, Bedminster, NJ 07921
Company Website Address	www.att.com
Name of Contact Person	Jeffrey S. Craft
Contact Person E-mail Address	jeff.craft@att.com
Contact Person Telephone #	703-220-7741

5. Questions

Please use the table to respond to the Commonwealth's questions.

Ref#	Category	Question	Supplier Response
A. Server/Storage Services			
Q1.	Server/Storage	The Commonwealth has upwards of 10 non-centralized Data Centers in Agency-operated buildings, primarily in the metro Richmond area. What are examples of Suppliers' best practices in managing the Servers, Storage, Firewalls, and Data Center LANs in non-centralized (Agency) facilities?	Ideally, VITA looks for a Managed LAN (MLAN) provider that offers: Architectural Audits, including • LAN requirements and documentation • Greenfield and transformation capabilities • Walk-in-take-over (WITO) management and maintenance Design and Engineering, including • Document requirements • Site surveys • Network design including diversity options • Physical and logical configurations • LAN addressing plan Implementation, including: • Project management • Equipment procurement and installation • Configuration of Remote Network Capabilities Managed LAN for greenfield data center utilizes leaf-spine reference architecture with Load balancing.

Ref#	Category	Question	Supplier Response
Q2.	Server/Storage	What does the Supplier recommend for the length of the contract for Server, Storage, and Data Center Services? Please describe benefits and trade-offs.	Sixty months appears to be the general term of most of our recent agreements with larger accounts like the Commonwealth of Virginia.
Q3.	Data Center	What do you recommend for the length of the contract for the Data Center Facility for this type of environment?	Sixty months appears to be the general term of most of our recent agreements with larger accounts like the Commonwealth of Virginia.
Q4.	Server/Storage	What does the Supplier recommend for technology refresh rate for the different types of Devices in VITA's environment? Is there an impact on the length of the services contract?	As the industry rapidly moves toward software defined networking (SDN), the refresh rate of software based elements such as network function virtualization can be "as-needed" since the software/firmware running the network connectivity is deployed on industry standard (commodity) appliances rather than purpose built appliances. For computing and storage appliances the refresh rate has steadily been reduced as the cost of the appliances have been correspondingly reduced. Our position on SDN and commodity appliances are further detailed in Q6 and Q22.
Q5.	Server/Storage	The Commonwealth is interested in a separate hardware charge in the Server	

Ref#	Category	Question	Supplier Response
		RUs to account for the initial capital outlay for physical servers. Is there a better way to represent the cost differences and hardware refresh cycle in the Server RU structure?	
Q6.	Server/Storage	The Commonwealth is proposing tiering of services for Server and Storage in an attempt to align costs with availability and performance. Based on your experience, do these tiers of service have any challenges in developing a solution? Do you have experience with these service tiering model? Do you have any recommendations or enhancements for the Commonwealth to consider?	AT&T tiers many applications in our IDCs (Internet Data Centers). With the growing adoption of flash technology and virtualization, tiering is easier to accommodate and improves cost effectiveness. VITA should also give consideration to another important trend: the arrival of viable software defined networking and Virtual Networking functionality for the broader telecom network. • SDN and Network Function Virtualization concepts were proven in the data center more than a decade ago. Cloud computing is now the standard for data services and application delivery. • These concepts are allowing companies to transition from specialized network equipment, which is more expensive and less flexible, to a network that runs on flexible, nimble software and virtualized equipment. • Software based networks require much less total hardware acquisition and deployment resources while the

Ref#	Category	Question	Supplier Response
			software handles delivery of network services and functionality. • The benefits include a more "virtualized" platform & agile functions. Workloads become elastic, distributed and more efficient. "Plug and play" and "Near Real Time" availability of service at scale become the norm. • Driving this trend is the recent viability of open source/open standards-based software for broad network applications. **Enhanced Control, Orchestration, Management and Policy (ECOMP) platform** AT&T committed to releasing into open source the software platform that powers our software-defined network (SDN). Making our current Enhanced Control, Orchestration, Management and Policy (ECOMP) platform available in open source will enable global service providers and cloud developers to meet non-stop network demands as data-hungry technologies like autonomous cars, augmented and virtual reality, 4K video and the Internet of Things take off. ECOMP lets service providers quickly add features and drive down operations costs. It gives service providers and businesses anywhere more control of their network services, and enables developers to create new services. Ultimately, consumers benefit because the network better adapts, scales and predicts how to make their connected experiences seamless. That means that all

Ref#	Category	Question	Supplier Response
			the cool network-enabled technologies coming in the next few years – from virtual reality to self-driving cars to 4K video – will run smoothly. We're turning legacy network appliances into software running on standard servers. This is called network function virtualization (NFV). Our goal is to virtualize 75% of our network by 2020. Controlling the actions of those virtual functions available via software is known as SDN. Managing all those virtual network functions (VNFs) and other software-centric network capabilities is much easier when they run on what's called a VNF automation platform. That's what ECOMP is.
Q7.	Server/Storage	The Commonwealth currently spreads costs across a very simple RU model. Do you have an enhanced RU model that could offer a larger variety of services while minimizing the RUs and their complexity?	
Q8.	Server/Storage	The Commonwealth is including	

Ref#	Category	Question	Supplier Response
		Bronze thru Platinum service levels for Server as examples of service categories. What would be required to implement this model in the Commonwealth ?	
Q9.	Server/Storage	Do you see a better way to bundle or spilt the services we are requesting, in order to more effectively integrate with other towers (including MSI), and obtain more flexibility in the Commonwealth's IT environment while maintaining appropriate Governance and security?	
Q10.	Server/Storage	Are their new Storage offerings, like Object Based Storage or predictive storage, that the Commonwealth should include in	AT&T's cloud network enablement technology, commercially known as AT&T NetBond®, enables enterprise grade cloud solutions – including virtual storage - by aligning AT&T's patented networking technology with partner cloud solution providers (CSPs).

Ref#	Category	Question	Supplier Response
		storage or enhanced services? How do you offer and charge for virtual storage?	The list of CSPs continues to evolve and grow, but a sample of current providers includes Amazon Web Services, Microsoft Azure, SoftLayer, BlueJeans Network, VMWare, Box, Salesforce.com. The AT&T NetBond infrastructure is tightly woven into the AT&T network and is open through APIs, providing customers the ability to extend their private cloud securely through MPLS VPN to utilize on-demand cloud services. A key element of AT&T's cloud strategy is to align itself with best-of-breed technology organizations to help deliver solutions marked by innovation, openness, and interoperability. NetBond is available both domestically and globally.
Q11.	Server/Storage	The Commonwealth is interested in ensuring it provides optimal storage performance and availability for VITA and VITA's Customers. How do you propose to provide and measure this performance?	**AT&T NetBond® Performance** AT&T NetBond taps software-defined networking technologies and patented routing capabilities to help enable businesses to bring the cloud within their VPN network – avoiding exposure to the public Internet and helping to mitigate security and performance risks. By integrating their VPN to the CSP platform, AT&T NetBond provides customers up to 50% lower latency for their applications when compared to cloud services that rely on the public Internet or private line connections. It also enables superior availability compared to Internet-based services with a reduction of up to 3x the downtime. The traditional approach to connecting enterprise networks to public cloud resources typically requires users to route through a single point of connectivity between the enterprise network and the

Ref#	Category	Question	Supplier Response
			cloud provider usually at a corporate data center or other regional hub site. The same indirect path is followed again on the return path. This redirection of end user traffic flow through the connectivity point is often referred to as “hairpinning.” Because of the indirect path that is followed to and from the cloud infrastructure, hairpinning adds significant delay when compared with AT&T NetBond. With AT&T NetBond, all existing VPN sites and end users are inherently connected to the cloud service provider– each following the most direct route across AT&T MPLS network without the need to gateway this traffic through a corporate hub or data center. Another AT&T NetBond performance advantage results from eliminating the need to traverse the public Internet to connect to the cloud service provider. The public Internet relies on best effort data transmission based on congestion factors and offers no data prioritization. This results in unpredictable data delivery and compromised availability. In contrast, AT&T NetBond leverages the network label switching of traffic and OSPF (open-shortest path first) routing capabilities to provide optimum and consistent performance and availability required by enterprise applications.
Q12.	Server/Storage	The Commonwealth has traditional x86 virtual servers, but it is also interested in the capabilities of a	Many organizations choose a hybrid cloud model, with services in both private cloud (on premise and colocation-based) and public cloud. Public cloud services might be used for development and testing, or for less critical applications, while mission-critical applications would go to the company’s private cloud. This model yields the on-

Ref#	Category	Question	Supplier Response
		private cloud. Could they be combined or left separate? Please describe how this could be accomplished most effectively.	demand resource availability and scalability that cloud services enable, while protecting the most sensitive applications and confidential data.
Q13.	Server/Storage	How does Database as a Service make sense for an Enterprise like the Commonwealth? Do you have any recommendations for how to charge for enhanced Database services (i.e., Development DBA)?	
Q14.	Server/Storage	The Commonwealth wants to provide cost effective solutions to VITA and the Agencies. What do you describe as the key cost and value drivers that would help the Commonwealth offer services that are not cost	

Ref#	Category	Question	Supplier Response
		prohibitive to deliver? Do you see any requirements in the description of services in this RFI that would cost more to meet than the business value they provide?	
Q15.	Security	The Commonwealth is interested in an Enterprise Key Management System for compliance and security. How do you propose the Commonwealth request Key Management services?	The Commonwealth could structure a request for Token Authentication Service that assists in allowing only authorized users to the Customer's network with higher levels of security than simple UserID and Password authentication. It should provide customers with the capabilities to deploy strong authentication using software-based or hardware based One-time Passwords (OTP) tokens. Multi Factor Authentication Service combines information of what you know (user-created Personal Identification Number (PIN)) with what you have (a One Time Password (OTP) token code that is randomly generated by an authenticating device and application that the User possesses) to offer greater security then just a user id and password knowledge alone. Authentication at the device has the added advantages of a simpler user experience for the end user and reduces costs for the customer. It is also less likely to be forgotten or misplaced than a hard token. The Commonwealth should request Token Authentication Service as a cloud-based service that simplifies implementation and

Ref#	Category	Question	Supplier Response
			helps reduce customer cost of ownership. The service should be OATH compliant and designed to be resistant against known of Brute Force or After Theft attacks. Lastly, the Commonwealth should consider Multi-Factor authentication for Higher Level of Assurance and require: • Best in class security with Advanced Two-factor authentication • Authentication routed to mobile devices employees already have. • Hard (Keyfob) tokens also available. • Authentication easily embeds into your applications that need security • Cloud delivery and mobile technology make service Easy to use - Easy to deploy - Easy to maintain / support • Cost effective • Flexible • Growth platform for future innovations
Q16.	MSI	Identity and Access Management (IAM) services and the systems supporting those functions are currently split between multiple	

Ref#	Category	Question	Supplier Response
		providers. How do you propose bringing these services together to provide a single integrated service?	
Q17.	MSI	The Commonwealth has defined the cross-functional requirements in Exhibit 2.2. Do you have any comments in the structure and handoffs identified in this document? Do you have any prior experience working with MSIs? Do you have any recommendations regarding the approach for how the MSI should interact with the other suppliers?	
Q18.	MSI	Do you see any benefits or challenges in requiring the Data Center facility provider to also be responsible for	

Ref#	Category	Question	Supplier Response
		providing common operating monitoring groups in the same solution (e.g., CMOC, ITOC, SOC, NOC)?	
Q19.	MSI	The Commonwealth currently has a single traditional DR solution that requires the entire backup Data Center to be failed over. There is a desire to move to a more flexible solution that allows single Agencies or even applications to be failed over individually. This process requires design, development, operations, testing, and coordination. What role should VITA's MSI should play in this effort in relation with the Server Services provider?	

Ref#	Category	Question	Supplier Response
Q20.	Data Center	The Commonwealth is interested in Multi-site High Availability and Disaster Recovery Services. At a high-level, what do you recommend on the number and locations of centralized Data Centers the Commonwealth should utilize for that purpose? Any tradeoffs?	At least two redundant data centers geographically disperse. AT&T Reference Architecture DCs can scale from XS to XL based on number of redundant server ports needing connectivity.
Q21.	Migration	Suppliers will be required to provide an implantation plan to specify how they will take over responsibility for the existing environment. The Commonwealth is also interested in recommendations with regard to how the Commonwealth could migrate or transform to new Service	

Ref#	Category	Question	Supplier Response
		offerings. What do you recommend for this migration plan?	
Q22.	Enhanced Services	The Commonwealth is interested in receiving proposals to include new enhanced services, (e.g., Cloud, Analytics, Managed File Transfer) Can you recommend any other such enhanced services the Commonwealth should also consider including at the moment? How would you recommend these services be delivered?	AT&T is rapidly moving to a software-defined network, offering Network Functions on Demand (NFoD) utilizing Network Function Virtualization (NFV). Network Function Virtualization decouples network functions from dedicated hardware devices and allows these network functions to be hosted on virtual machines (VMs) accessed by a Universal CPE. VITA may consider requesting information on NFV and specifically industry-standard technology that replaces multiple premise based applications with a single Universal Customer Premise Equipment (uCPE) device. AT&T's uCPE offering, now called FlexWare, can house multiple VNFs that replace single-function stand-alone hardware appliances such as routers, firewalls, WAN and optimization; this may be an opportunity that VITA could explore. The benefit is to break free from being constrained with proprietary hardware/software combinations & left to the mercy of the vendors. We move from the "functions" such as routers and firewalls being individual devices consuming the applicable resources and utilize the next-gen platforms with x86 "white boxes" that allow us to run multiple functions from a single platform. We move from a one to one configuration with a proprietary device and single-function configuration, to a universal platform housing multiple functions in a

Ref#	Category	Question	Supplier Response
			single device or cloud infrastructure and saving the expenses related to multiple devices, rack space, real estate, and energy. This is the heart of Network Functions on Demand. In addition, AT&T NetBond® can address many of the risks of a public cloud platform by seamlessly integrating your AT&T MPLS VPN with our ecosystem of leading cloud service providers. You can connect directly to AT&T providers from any device that can connect to your VPN. AT&T NetBond bypasses the public Internet and connects directly to the cloud solution provider's data center. It gives you a virtual private tunnel that protects your traffic all the way from the end user's device to the cloud provider's platform. AT&T NetBond gives you dependable, high-performance access to cloud applications, as well as faster provisioning times and flexible scaling on demand. By providing a private connection to the cloud, NetBond can give you more consistent and predictable performance and availability than a traditional internet connection. As an AT&T network customer, NetBond is fast to deploy and simple to use, immediately giving you more control over your traffic and reducing management complexity.
Q23.	Enhanced Services	As the technology landscape	AT&T regularly reviews and revises business and technology approaches. Significant emerging technologies and business drivers

Ref#	Category	Question	Supplier Response
		changes in the Commonwealth's environment, could you describe other enhanced services that VITA and VITA Customers should consider in the future?	have encouraged the company to reassess desired future network technology, operations methods, and sourcing approaches in an effort called Domain 2.0. The work considered lessons learned from the current domain program as well as business and technical changes ongoing in our marketplace – especially those recently seen in data centers. The result includes a revised architecture that borrows from cloud technologies and suggests adding domains to our program that will allow for rapid innovation, new business models, greater customer value, greater opportunities for third parties to participate in the customer value chain and an increased choice of suppliers. While AT&T has managed risk and effectively served customer needs until now, we foresee changes in customer needs, changes in technologies, and changes in best practices for operating networks in the near future. This dynamic influenced the company to project what our business will look like in 2020 and beyond, and make adjustments to our architecture roadmap. These adjustments include the provision of new capabilities to meet customer needs, new technologies and architecture to increase operational efficiency, and establishment of new supplier domains that can nurture new types of technology and suppliers. The rapid growth in IP endpoints requires greater scale and efficiency in handling the number and diversity of devices than we are getting from traditional network solutions. Movement of data to the cloud for use on any device and increasing use of virtual

Ref#	Category	Question	Supplier Response
			machine models redefines the endpoints and timeframes for provisioning network connections. These drivers require the business of networking to significantly improve the capital efficiency and human operations per unit of business. In conjunction, there are technologies, architecture, and operational approaches informing our choices for future network capabilities by a similar transformation going on in data centers and in cloud computing. In summary, the major aspects of AT&T's Domain 2.0 architecture are: **Open** – Provide APIs, enable better participation of third parties, and improve visibility. Increase the number of suppliers and partners AT&T can do business with. **Simplify** – Weed out complexity from services and operations; support more nimble business models. **Scale** – Meet evolving customer requirements including traffic growth, diversity of traffic types, and diversity of performance and reliability expectations. Improve business efficiency in capital and operations. **Domain 2.0 Summary** Domain 2.0 is a transformative initiative, both internal and external, to enable AT&T network services and infrastructure to be used, provisioned, and orchestrated as is typical of cloud services in data centers. It is characterized by a rich set of APIs that manage, manipulate, and consume services on-demand and in near real time. Moreover, these network services are to be instantiated, to the extent feasible, on common infrastructure. In a nutshell,

Ref#	Category	Question	Supplier Response
			Domain 2.0 seeks to transform AT&T's networking businesses from their current state to a future state where they are provided in a manner very similar to cloud computing services, and to transform our infrastructure from the current state to a future state where common infrastructure is purchased and provisioned in a manner similar to the PODs used to support cloud data center services. Migrating AT&T businesses to a multi-service, multi-tenant platform implies replacing or augmenting existing network elements – which today are typically integrated to perform a single function. The replacement technology consists of a substrate of networking capability, often called Network Function Virtualization Infrastructure (NFVI) or simply infrastructure that is capable of being directed with software and Software Defined Networking (SDN) protocols to perform a broad variety of network functions and services. This infrastructure is expected to be comprised of several types of substrate. The most typical type of substrate being servers that support NFV, followed by packet forwarding capabilities based on merchant silicon, which we often call white boxes[2]. However it's envisioned that other specialized network technologies are also brought to bear when general purpose processors or merchant silicon are not appropriate. AT&T services will increasingly become cloud-centric workloads. Starting in data centers (DC) and at the network edges –

Ref#	Category	Question	Supplier Response
			networking services, capabilities, and business policies will be instantiated as needed over the aforementioned common infrastructure. This will be embodied by orchestrating software instances that can be composed to perform similar tasks at various scale and reliability using techniques typical of cloud software architecture. As an example, an edge router might be purchased as a monolithic device today – where the hardware, feature functions, and a specific applicable scale of use are pre-integrated into a single device. Often a variety of device sizes need to be purchased in order to support variances in workload from one location to another. In Domain 2.0, such a router is composed of NFV software modules, merchant silicon, and associated controllers. The software is written so that increasing workload consumes incremental resources from the common pool, and moreover so that it's elastic: so the resources are only consumed when needed. Different locations are provisioned with appropriate amounts of network substrate, and all the routers, switches, edge caches, and middle-boxes are instantiated from the common resource pool. Such sharing of infrastructure across a broad set of uses makes planning and growing that infrastructure easier to manage. As was just shown, the key benefit of this transformation is that it will allow AT&T and our customers to share a common pool of resources (& CAPEX) and to use those resources in order to compose network capabilities and services on-demand, with elasticity, and driven with orchestration

Ref#	Category	Question	Supplier Response
			techniques similar to those seen managing the workloads in cloud data centers. From an AT&T business perspective, this transformation is expected to give greater access to technologies and innovations from data centers, including rapid innovation in server hardware, virtualization, cloud computing, software defined network switches and controllers, competitive independent software and software development solutions, and well supported open source communities. Additional benefits are foreseen, including more choice of components and suppliers, faster time to market for new products and services, better utilization of physical resources, and greater flexibility in the business models AT&T participates in with both customers and suppliers. This change in infrastructure is likely to increase support for usage-based software models and diverse sources for hardware and software, and also forging partnerships and relationships with vendors and organizations who have not been traditional telecom vendors. At this point, Domain 2.0 is not a completed architecture or technology plan; rather it sets direction. There remains much to do before this vision can be implemented, including pivots from networking craft to software engineering, and from carrier operations models to cloud “DevOps” models. We also see an important pivot to embrace agile development in preference to existing waterfall models.




Ref#	Category	Question	Supplier Response
			Full white paper available: http://about.att.com/innovation/sdn [2] For this white paper and in the other attachments, the term *White Box* means a network data plane forwarding/processing element that is based on readily available networking hardware, such as merchant silicon, network processors, or ASICs. It is available from many suppliers, is interchangeable with other white boxes; and has both limited integrated control plane functions as well as support for SDN Control (decoupled control) through a standard, open interface.
Q24.	Enhanced Services	What would you propose as a good business case for virtualizing the desktop (offering VDI)?	
Q25.	Data Center LAN	What do you recommend as the best demarcation point between the Data Center LAN and the Network or WAN? The Commonwealth wants to make the cleanest scope separation for a	Ideally, the demarcation point is the common carrier "Meet Me Room" in the Data Center, which provides clear handoff from Data Center LAN to Network supplier WAN, and should specify whether coax cross connect, copper cross connect or fiber cross connect.

Ref#	Category	Question	Supplier Response
		future WAN Network RFP.	
Q26.	Data Center LAN	In the current RFI, the Commonwealth has bundled Data Center LAN services (e.g., switching, routing, load balancing and firewall) with Server and Storage services. Do you find any challenges, issues, or concerns with this approach and why? Any recommendations?	Yes, the approach could cause challenges. We would recommend separating the elements to allow for responses on specific services, rather than bundles. As an example, cloud storage options may be a best-of-breed offer for a respondent, but that same firm does not offer Data LAN services, so it would be advantageous to unbundle the services.
Q27.	Data Center LAN	The Commonwealth did not bundle Data Center LAN services (e.g., switching, routing, load balancing and firewall) with the Data Center Facility services (e.g., HVAC, power, raised floor). Do you believe this is the correct approach? Do you have any	Yes, we agree the best approach is to keep elements separate.

Ref#	Category	Question	Supplier Response
		recommendations?	
Q28.	Data Center LAN	The Commonwealth is considering decoupling the Data Center Facility services from the Server, Storage, and Data Center LAN services. What do you think of this approach? What do you think are the advantages, disadvantages and tradeoffs of splitting the facility services out versus coupling these services with Server, Storage, Data Center LAN?	Yes, we agree the best approach is to decouple the services for the reasons provided in Q26. The advantage would be RFP responses that are service element specific, which should provide the Commonwealth with greater options.
Q29.	Data Center LAN	Supplier is expected to provide centralized Data Center LAN services. Should LANs in non-centralized Data Centers be part of the scope for Data Center LAN services or bid as part of	

Ref#	Category	Question	Supplier Response
		Network/WAN in a future procurement? What would be the pros/cons and tradeoffs?	
Q30.	Data Center LAN	If the solution includes new Data Centers, who should provision and manage the network connections between the Data Center locations? Should it be the Network Provider, the Data Center Provider or the Server, Storage, Data Center LAN Provider?	Customarily, we would expect network connections between data center locations – likely a wide geographic distance – to be provisioned and managed by the Network Provider.
Q31.	Data Center	How does the Supplier propose to migrate Server, Storage, Data Center LAN services out of the CESC datacenter by June 2019 or earlier? Describe how the Supplier would seamlessly migrate out of	Data Center Network Design The data center infrastructure is central to the overall IT architecture. It is where most business-critical applications are hosted and various types of services are provided to the business. Proper planning of the data center infrastructure design is critical, and performance, resiliency, and scalability need to be carefully considered. Another important aspect of the data center design is the flexibility to quickly deploy and support new services. Designing a flexible architecture that can support new

Ref#	Category	Question	Supplier Response
		CESC like-for-like, transform to new services, or a combination of the two? What are the recommended approaches?	applications in a short time frame can result in a significant competitive advantage. The basic data center network design is based on a proven layered approach that has been tested and improved over the past several years in some of the largest data center implementations in the world. The layered approach is the foundation of a data center design that seeks to improve scalability, performance, flexibility, resiliency, and maintenance. The three-tier hierarchical design maximizes performance, network availability, and the ability to scale the network design. Some locations are small enough to be well served by a two-tier hierarchical design, where the core and distribution layers are collapsed into one layer. The primary motivation for the collapsed core design is reducing network cost, while maintaining most of the benefits of the three-tier hierarchical model.
Q32.	Cloud Services	The Commonwealth is interested in a solution that integrates traditional hosting services with new private, community, and public cloud offerings. How do you propose integrating these services?	AT&T has created our IaaS service framework and offerings by integrating capabilities from a variety of hardware and software providers in a way that gives us flexibility to incorporate additional technologies over time. As a service provider, we are vendor agnostic and seek simply to offer the most robust, feature-rich service experience with the goal of delivering the best overall value for our customers. Our approach to service design and delivery allows us to provide diversity in the technologies, features and solutions we can

Ref#	Category	Question	Supplier Response
			enable for customers. For example, in the cloud computing space we expect over time to introduce services based on additional hypervisor options, as well as to continually broaden the range of available options for operating systems, software, virtual appliances, toolsets, reports and more. AT&T is supportive of industry efforts that promote openness and interoperability among cloud providers. We are a signatory of the Open Cloud Manifesto and participate in industry consortiums such as the Cloud Security Alliance. As standards emerge in the industry, AT&T plans to participate in those efforts, and would adopt such standards by incorporating into our services and/or providing mechanisms for our customers to interface to them. Today, AT&T is focused on best practice cloud delivery using APIs based on commonly-used representational state transfer (REST) web services frameworks and methodologies. Additionally, AT&T's growing body of work with third-party cloud enablers can help facilitate interoperability between our services and those from other cloud providers, as well as with private cloud environments.
Q33.	Cloud Services	What would be the best practice with regard to Suppliers owning the cloud contracts and potentially transferring that contract to the Commonwealth	

Ref#	Category	Question	Supplier Response
		? Should the Commonwealth own that contract outright? Are there any other alternatives to be considered?	
Q34.	Cloud Services	When the Commonwealth buys cloud services offerings how do you propose to identify where the data and services are located?	We can offer colocation services at more than 300 facilities in 16 countries across 5 continents. Domestically, we can help you deploy cloud solutions in popular regions such as Chicago, Dallas, Northern Virginia and Silicon Valley, and internationally, we can support your business in cities like Frankfurt, Amsterdam, Hong Kong, Singapore, London and Sydney. Specific to AT&T NetBond, we will work collaboratively with VITA and the Cloud Service Provider (CSP) to identify the most logical location(s), which may include AWS in Northern VA; Cisco WebEx, Microsoft Azure Government Private/Public, SoftLayer and Salesforce.com in Ashburn VA; and Sungard AS in Philadelphia PA.
B. Financial/Server Storage			
Q35.	Pricing Structure	The Commonwealth is interested in creating the best possible pricing structure for the Services. In light of that fact,	

Ref#	Category	Question	Supplier Response
		Supplier is invited to both comment on the structure described in Exhibit 4.1 and 4.2, and to propose an alternate pricing structure if they believe that it will better serve the interests of both parties. The Commonwealth will contemplate any proposed pricing structure along five dimensions: 1. **Predictable:** To the greatest extent possible, customers should be able to forecast charges ahead of time; changes in pricing that occur over time should not be a surprise.	

Ref#	Category	Question	Supplier Response
		2. **Manageable:** The pricing should not be so complex that it is needlessly difficult to administer. If quantities of work or equipment in the environment must be measured, then those quantities should be as easy and transparent as possible to measure. 3. **Fair:** The service pricing must be a reasonable proxy for a services provider's underlying costs and should adequately recover those costs. Additionally,	

Ref#	Category	Question	Supplier Response
		to the extent possible, the party that causes any incremental cost should bear that cost. 4. **Incentives:** All pricing structures will incentivize certain behaviors and discourage others. The goals of the sourcing program must be kept in mind when considering the behaviors that might be driven by a pricing structure. For example, a goal to encourage server consolidation might include reduced cost at a	

Ref#	Category	Question	Supplier Response
		centralized data center. 5. **Flexible:** As consumption moves up and down, the charges should also adjust. Technology is an evolving industry, and the ability to turn down an old service to turn up a new service is one of the benefits of an efficient IT sourcing agreement. Such adjustments may include minor volume changes month to month, significant scope additions, reductions, or terminations, and ability of large service	

Ref#	Category	Question	Supplier Response
		providers to re-deploy investments.	
Q36.	Inventory and Volume Collection	The Commonwealth is interested in introducing new Resource Units that do not exist in the current contract; in order to fairly compensate Supplier for service delivered, and support the other goals described in question 36, Supplier is asked to describe their experience and approach to collecting and verifying volumes both before and after contract signing, and the approaches they use to adjusting financials in the event that the initial count is incorrect. For example, today database support is provided by the Supplier, but is	

Ref#	Category	Question	Supplier Response
		not separately billable. The Commonwealth sees an advantage to separating out database support and making it a separate chargeable unit, how would the service provider collect and verify the volumes to support this chargeable unit?	
Q37.	Asset Ownership	The Commonwealth consumes certain services today which are underpinned by a set of assets (servers, firewalls, etc.). The Commonwealth (or their designee) has the right to acquire these assets. The Commonwealth has a desire to consume services; rather than own assets, and envisions Supplier	

Ref#	Category	Question	Supplier Response
		acquiring these assets and using them to provide services back to the commonwealth. Please describe experiences acquiring assets from an incumbent, and also describe your recommend financial treatment of their cost recovery for these assets.	
C. Managed Security			
Q38.	Security	The Commonwealth's Managed Security description of services includes all the required scope bundled for a single experienced Security Supplier. Do you see any challenges or issues with this bundled model?	No, there are many credible organization that can provide a holistic operational delivery for security. Understanding that even a single operational delivery will likely utilize specialized 3rd party resources to deliver very niche type efforts that might not be fully developed for a traditional "security solutions organization".
Q39.	Security	Do have any concerns or	Again, many large Managed Service Security Providers (MSSP) have the capability to service organizations the size of the

Ref#	Category	Question	Supplier Response
		recommendations regarding how to scale Managed Security Services to organizations of the size and complexity of the Commonwealth?	Commonwealth of Virginia. The real test is whether or not those MSSPs have the potential to influence the network infrastructure in such a way to proactively see and protect geographically diverse network locations in near real time, when identifying a threat that is currently unrelated to their infrastructure. We would recommend the question "How can you protect me before I am attacked" would be "best practice"
Q40.	Security	Can you provide examples of comparable environments where you offer security services similar to those required by the Commonwealth?	Yes, the states of Georgia, Kentucky and Texas as well as The Department of Justice, the United States Postal Service and commercial enterprises such as Shell Oil.
Q41.	Security	Have you supported Managed Security services in distributed environments - both physical and virtual including on premise and off premise implementations?	The best network and infrastructure takes advantage of a hybrid model, cloud and premise – using the unique advantages of both. AT&T is not different, internally we utilize our cloud as visibility and control tool to both identify and protect your network and infrastructure from threats, dynamically. We provide the same approach for our customers.
Q42.	Security	Do you offer solutions supporting geographically diverse locations	Yes, the only limitation is logical network access. If AT&T can get a route through the network we can monitor and protect the infrastructure

Ref#	Category	Question	Supplier Response
		(e.g., remote location with satellite)?	
Q43.	Security	How have you implemented solutions similar to those in the Commonwealth making use of a centralized federated environment?	Yes. AT&T is an excellent example in itself. AT&T's global network is built using a federated architecture, while centralizing security using a defense in-depth approach.
Q44.	Security	What do you consider to be the key challenges and tradeoffs for the implementation of Managed Security Services in an environment similar to the Commonwealth?	There are multiple tradeoffs in moving from self / local management and service provider management. Most of them are associated with staff re-utilization and training. Another common challenge is the associated detail available to the organization. When utilizing a MSSP, customers frequently no longer have the "control" to make ad-hoc changes themselves. The internal technical team who traditionally has been able to make adjustments is often required to request support from another resource – that is nearly a universal adjustment for technical assets. The tradeoff is that they no longer need to be involved in the actual upkeep, they just dictate their needs to the service provider, and confirm they are sufficient after. This usually simplifies their level of effort and releasing the local resource to move up the technology stack to more complex efforts that require intimate knowledge of resources, topology, and personnel.
Q45.	Security	What do propose at a high level to be	AT&T recommends the following strategies and implementation elements, which have been used in similar implementations:

Ref#	Category	Question	Supplier Response
		the key strategies and implementation elements of any typical security services solution migration?	Security Operations & Lifecycle Management Architecture: Staff: Support model, Tier Structure, and Training and experience. ITSM Process Architecture: Incident & Forensic Management, Problem Management, Change Management, and Security Management. Review Business Process Management Security Tools Architecture: Firewall Management systems, IDPS Management systems, and SIEM platform (i.e.Splunk). Existing Security Governance model and practice: The Discovery Phase will establish requirements for an improved, transitional operations environment in order to define an operations strategy for mutually approved and targeted tactical improvement plans. AT&T will gain an understanding of the existing Security operations, with a focus on functionality and capabilities. Collection and review of existing processes will also be accomplished. Discovery provides a review of the applicable management systems in place in the context of the following: How they facilitate effective delivery of Security Management services;

Ref#	Category	Question	Supplier Response
			How closely their implementation and execution support key operational processes; and How they are procured, designed, implemented, integrated and consumed. The outcomes include a definition for a "target state" operating environment that will be built on a strategic framework development effort and subsequent development of the security operations architecture and its delivery elements. Following Discovery is Optimization: AT&T has significant experience with assisting customers with the realization of Operational transformations such as the establishment of a Command Center and the associated operational processes and tools to increase the efficiency of the operation, and ultimately better align with the required performance and SLA's for the business. AT&T has compiled an approach using multiple work streams (WS) to govern the "Command Center Realization" effort. This phase is designed to address all of the elements discovered and plans produced during Phase 2, including operational definition, processes, tools, staffing, and training needed to "operationalize" the command center, and efficiently leverage the technologies that will run the service and application views within the center. This phase is broken into the work streams. SOC Optimization (Optimal) Phase Three – Security Command Center Realization

Ref#	Category	Question	Supplier Response

Work Stream	Description	Key Deliverables
WS 0	Establish Command Center Charter/Concept of Operations (CONOPS)	Command Center Charter Concept of Ops
WS 1	Establish Operational Process Definition (Event Management)	Event Management Framework with ITIL Process Inputs/Outputs
WS 2	Tools Architecture/Tool Implementation	Finalized Integrated Tools Architecture Manage Tool Deployment
WS 3	Update ITIL Process/Develop Desk Level Procedures	Finalized ITIL Process Definition Documents Desk-Level Procedures by role
WS 4	Command Center Pilot Deployment for LAN/WAN	“Operationalize” Command Center for LAN/WAN Pilot
WS 5	Complete/Finalize	Monthly program

Ref#	Category	Question	Supplier Response
			<table><tr><td></td><td>Realization/Ongoing Process Improvement</td><td>review / workshops</td></tr></table> **Work Stream (WS) Summary** **WS 0** – AT&T will define the Command Center Charter, Operating Model, and Concept of Operations (CONOPS) **WS 1** – AT&T will compile Level 0 and Level 1 process frameworks for key related processes that will govern the operation of the center, including the Event Management Framework. This work stream will also include the compilation of the services that CUSTOMER provides to their customers/business in order to verify that the operations plan accommodates the support of all services within CUSTOMER. **WS 2** – AT&T will provide a Senior Tools Architect to confirm requirements of the tools architecture developed during Phase 2, support the creation/execution of the integration plan, as well as lead the deployment for the tools architecture. **WS 3** – AT&T will perform process modification as required to accommodate the final work flow for the center, incorporating the tools and technology that was implemented for the Command Center. This will include formalizing Desk-Level procedures for Event and related incident, change, and problem management. **WS 4 –** AT&T will provide architectural leadership for the “Controlled

Ref#	Category	Question	Supplier Response
			Introduction" of the Command Center into the operation for the Local-Area and Wide-Area network environments, and the transition of phase 1 to the established model. **WS 5 and Beyond** – AT&T has provided pricing to perform monthly workshops to review the milestones and will make recommendations from the operations readouts performed during those reviews.
Q46.	Security	Can you recommend additional Managed Security Services that are not currently included or considered in the scope of described services?	The future of Security is going toward a Network Function Virtualization. Not only do customers need to protect their current model, they need to plan for the next generation of capabilities and have a network that is flexible and nimble enough to take the best advantages of it. So more than "Control & Visibility" you need flexibility to introduce new Software defined security tools as they become available as well as the capability to tie the increased visibility provided to a near instant capability to deploy and use new security technology. In the last eight years, data traffic on our wireless network has increased a staggering 100,000 percent, driven primarily by video. We're asking a network model designed years ago for modest and predictable increases in voice traffic to adapt to a world of streaming videos, high-definition games, and photo-intensive social media. We've been able to keep up with the increase by using more and more sophisticated, complex routers, switches and other gear. But this just isn't feasible for

Ref#	Category	Question	Supplier Response
			much longer. It's too slow, too inefficient and too expensive. At AT&T, we have found a better way. It's a model developed in the IT world, where you emulate the functions of those complex pieces of hardware with software, and run that software on standard, off-the-shelf hardware. You can add capacity faster and push out upgrades at the speed of the Internet. That's the model for our next-generation network, powered by technologies including software-defined networking (SDN) and network function virtualization (NFV). By 2020, we plan to virtualize and control over 75 percent of our network using this new software-defined architecture to meet the growing demands of data and video-hungry users.
Q47.	Security	Based in your experience, what are the key challenges with regard to the regulatory requirements included in the scope of services? Do you have any recommendations based on your experience?	ATT focuses heavily on NIST controls. This environment gives us a good foundation to help meet other mandated efforts or frameworks our customer might have.

Ref#	Category	Question	Supplier Response
Q48.	Security	Do you have any guidelines or best practices regarding whether the various Managed Security Services are better off being remotely hosted or on premise?	Yes, there are definitely "sweet spots" for security services. For example, firewalls, threat management, Denial of Service protection (as an example) are better serviced being delivered by a service provider. Services that would be enhanced with real-time large volume network activity that is correlated with customer log and device activity would generally be best managed remotely via real-time teams. Services supporting "Incident Response", desktop security, auditing, etc. are normally solutions that need very tactical knowledge of the network, infrastructure and most importantly the supporting staff working on those elements.
Q49.	Security	Do you think you would be able to provide all the described Managed Security Services yourselves or will you require to subcontract any services to other third parties?	As one of the largest systems integrators and project management organizations in the United States, AT&T occasionally uses combinations of best-of-breed services to augment those mainstream solutions developed internally. To provide complete managed security services for the Commonwealth AT&T would recommend a hybrid approach. That is to use a MSSP that would be responsible for all platforms and have the flexibility to embrace new and/or 3rd party solutions as needed. AT&T would be the single point of accountability for all services provided under our umbrella of efforts – the same sales team, executives, and security oversight would apply to supporting your initiatives.
Q50.	Scope Demarcation	VITA is interested in identifying the most efficient demarcation or	AT&T recommends a Managed Security Services Provider approach in which all security services can be provided by a single provider. AT&T has hybrid security models in place with existing customers where a

Ref#	Category	Question	Supplier Response
		bundling of these services between RFPs. For example, perhaps it would be more efficient to separate the Data Center facilities from the other Server services; or perhaps it would be better to include some or all of the Security services with the Server RFP. Please provide any further experience or suggestions regarding scope demarcation between potential RFPs.	customer SOC is staffed with AT&T personnel that focuses on managing internal LAN security functions (DMZ inward) and the AT&T Threat Management SOCs supports external services such as DDOS, Threat Management Log Analysis (Cloud- based SIEM service), managed Firewall, Managed IDS/IPS at customer end points, and also taking advantage of many Cloud Based Security Services.
D. Financial/Managed Security			
Q51.	Pricing Structure	The Commonwealth is interested in creating the best possible pricing structure for the Services. In light of that fact, Supplier is invited to both	

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		comment on the structure described in Exhibit 4.1 and 4.2, and to propose an alternate pricing structure if they believe that it will better serve the interests of both parties. The Commonwealth will contemplate any proposed pricing structure along five dimensions: 1. **Predictable:** To the greatest extent possible, customers should be able to forecast charges ahead of time; changes in pricing that occur over time should not be a surprise. 2. **Managea**	

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		ble: The pricing should not be so complex that it is needlessly difficult to administer. If quantities of work or equipment in the environment must be measured, then those quantities should be as easy and transparent as possible to measure. 3. **Fair:** The service pricing must be a reasonable proxy for a services provider's underlying costs and should adequately recover those costs. Additionally, to the extent possible, the party that	

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		causes any incremental cost should bear that cost. 4. **Incentives:** All pricing structures will incentivize certain behaviors and discourage others. The goals of the sourcing program must be kept in mind when considering the behaviors that might be driven by a pricing structure. For example, a goal to encourage server consolidation might include reduced cost at a centralized data center.	

Ref#	Category	Question	Supplier Response
		5. **Flexible:** As consumption moves up and down, the charges should also adjust. Technology is an evolving industry, and the ability to turn down an old service to turn up a new service is one of the benefits of an efficient IT sourcing agreement. Such adjustments may include minor volume changes month to month, significant scope additions, reductions, or terminations, and ability of large service providers to	




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		re-deploy investments.	
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		billable. The Commonwealth sees an advantage to separating out database support and making it a separate chargeable unit, how would the service provider collect and verify the volumes to support this chargeable unit?	
Q53.	Asset Ownership	The Commonwealth consumes certain services today which are underpinned by a set of assets (servers, firewalls, etc.). The Commonwealth (or their designee) has the right to acquire these assets. The Commonwealth has a desire to consume services; rather than own assets, and envisions Supplier acquiring these	

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		assets and using them to provide services back to the commonwealth. Please describe experiences acquiring assets from an incumbent, and also describe your recommend financial treatment of their cost recovery for these assets.	

6. Feedback Regarding RFI Documents

Please use the table below to provide commentary regarding specific documents included within this RFI, adding rows as necessary.

Ref#	Document/Section	Supplier Commentary
C1.		
C2.		
C3.		
C4.		
C5.		
C6.		
C7.		
C8.		
C9.		

Ref#	Document/Section	Supplier Commentary
C10.		

AT&T Attachments